General

Guideline Title

Conservative care options for work-related epicondylosis.

Bibliographic Source(s)

Washington State Department of Labor and Industries. Conservative care options for work-related epicondylosis. Olympia (WA): Washington State Department of Labor and Industries; 2014 May 1. 20 p. [71 references]

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Practical Application Points

- Several conservative interventions provide rapid relief of pain and improved pain-free grip including: eccentric extension exercise, elbow manipulation, soft tissue procedures (e.g., trigger point pressure in extensor muscles), and corticosteroid injections.
- Set outcome goals for sustainable self-management (exercise, massage, activity modification) to maintain pain reduction and improved function.
- One tennis elbow specific questionnaire and two more general upper arm function questionnaires have been shown to be sensitive to measure functional change in epicondylosis.

Work-Related Epicondylosis (Epicondylitis)

Epicondylosis is characterized by medial or lateral elbow pain that worsens when muscles originating from the condyles are contracted, placing stress on the attachments. Lateral epicondylosis or "tennis elbow" is common, often associated with direct trauma to the lateral elbow. Repetitive work does not appear to be a risk factor; although there may be a relationship between combined factors such as force, posture, trauma, and repetition. Diagnosis is clinical; no studies on diagnostic accuracy or reliability of clinical examination were found. Pain is related to degenerative change more so than inflammation. The condition is frequently self-limiting within 6 to 24 months.

Case Definition

- Work-related lateral epicondylosis (LE) is lateral elbow pain subsequent to a documented workplace exposure that is worsened by gripping and resisted wrist extension.

Evaluation Summary

- Rule out non-mechanical causes (typically by assessing for red flags for trauma/fracture, tumor, etc.)
- Pain over the epicondyles provoked by resisted extensor contraction (e.g., gripping, twisting motions) is consistent with epicondylosis.

Intervention Summary

- Most acute/sub-acute cases self-resolve within weeks to months. Rapid resolution has been reported with slow stretching, eccentric resisted contraction exercise, elbow manipulation, soft tissue wok (effleurage massage, trigger point pressure, mechanically assisted tissue work). Extension bracing and/or activity modification may be helpful.
- Benefit has been reported in lesser quality studies with iontophoresis and phonophoresis applied non-steroidal anti-inflammatory drugs (NSAIDs). Ultrasound does not appear to provide any advantage over placebo.
- Short-term relief for corticosteroid injection may be outweighed by poorer one-year outcomes compared to physiotherapy or wait and see approaches.
- Chronic conditions are thought by some to be related to tendon degeneration more than an inflammatory process from microtears. Treatment options are similar with some consideration.

Improvement Progress

- Achieving and monitoring functional progress is central to effective care of epicondylosis. The best overall long-term outcomes are believed to be associated with consistent, incremental increases in functional ability (e.g., pain-free grip strength, improving mobility, return to usual activities including work).
- Refractory cases warrant consideration for additional diagnostics to assess for tendon rupture or muscle tear.

Typical Interventions and Response Thresholds

1 to 2 Weeks	3 to 6 Weeks	7 or 8 Weeks	Beyond 8 Weeks
• Ice and avoidance of provoking activities. 30° to 45° wrist extension splint may be helpful. • Rapid improvement is reported with eccentric extensor contraction exercise, manipulation, and soft tissue work. Utility of iontophoresis and phonophoresis is mixed. • Steroid injections are associated with poorer long-term outcomes	• Improvement is best assessed by increasing functional gains, including ability to return to work. • Sustained functional gains should be tracked using a functional questionnaire specific to tennis elbow or the upper extremity. • Myofascial release and manipulation of elbow structures are effective. Rapid transition to self-management using eccentric resistance contraction exercise and massage should be encouraged.	• Good Improvement: Condition should be mostly resolved or primarily self-managed. • Inadequate improvement: Persistent, recurrent pain on wrist activity may point to need for more attention to activity modification and if not address may warrant consideration of additional diagnostics (e.g., imaging to assess for muscle or tendon tears/ruptures).	

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Work-related lateral and medial epicondylosis (epicondylitis)

Guideline Category

Diagnosis

Evaluation

Management

Rehabilitation

Treatment

Clinical Specialty

Chiropractic

Family Practice

Internal Medicine

Orthopedic Surgery

Physical Medicine and Rehabilitation

Rheumatology

Sports Medicine

Intended Users

Advanced Practice Nurses

Chiropractors

Health Care Providers

Nurses

Occupational Therapists

Physical Therapists

Physician Assistants

Utilization Management

Guideline Objective(s)

- To provide concise summaries of published clinical and scientific literature regarding utility and effectiveness of commonly used conservative approaches for work-related epicondylosis; history, examination and special studies; recommendations for supportive, manual, and rehabilitative care including practical clinical resources (useable without licensing/charge in practice for non-commercial use)
- To inform care options and shared decision-making

Target Population

Workers with, or at risk for, work-related epicondylosis

Interventions and Practices Considered

Diagnosis/Evaluation

1. Functional questionnaires

2. Clinical examination (not recommended)
3. Differential diagnosis (ruling out non-mechanical causes)

Treatment/Management

1. Ice
2. Avoidance of provoking activities
3. Eccentric extensor contraction exercise
4. Soft tissue work (effleurage massage, trigger point pressure, mechanically assisted tissue work)
5. Extension bracing
6. Activity modification
7. Iontophoresis- and phonophoresis-applied non-steroidal anti-inflammatory drugs (NSAIDs)
8. Corticosteroid injections
9. Myofascial release
10. Manipulation of elbow structures
11. Self-management
12. Monitoring of progress

Major Outcomes Considered

- Accuracy and clinical utility of commonly used functional measurement instruments/scales
- Recurrence rate
- Pain-free grip strength
- Pressure-pain threshold
- Pain and function scores
- Return to usual activities including work

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

An extensive search was done on lateral epicondylitis/epicondylosis, medial epicondylitis/epicondylosis on PubMed and other electronic databases. Articles were retrieved by the Labor and Industries librarians. Additionally citation tracking was performed by department staff and committee members for potentially relevant studies not retrieved from electronic databases. Based on apparent topic relevance, additional database searches were conducted on specific tests and treatments.

The bulk of the literature search and review for this update was conducted between January and February 2014. Additional searches were conducted as requested by the Industrial Insurance Chiropractic Advisory Committee Subcommittee members. Search results were limited to human adults only and English only. The original literature search was conducted in spring 2011. Studies that were published in the last 10 years were emphasized.

The following keywords were used in PubMed:

Terms for epicondylosis (the condition) were searched in combination with terms for each of the other categories (diagnosis, conservative treatment, and outcome).

- The condition: Lateral epicondylitis, medial epicondylitis, lateral epicondylosis, medial epicondylosis, tennis elbow, golfers elbow
- Work-relatedness: Occupational health, injury, disease, workers compensation, return to work, disability
- Diagnosis: Diagnosis, symptoms, signs, validity, reliability, sensitivity, specificity, electrodiagnostic studies
- Treatment: Treatment, conservative therapy, interventions

Number of Source Documents

148 reviewed (71 cited)

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Evidence was graded on a 1-5 scale with 1 being the highest grade:

1 = Randomized controlled trial

2 = Cohort study, prospective or historical

3 = Case-control study

4 = Cross-sectional study

5 = Case series

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Individual articles were reviewed by both a clinical expert and epidemiologist with subsequent clinical expert group review to resolve inconsistencies.

Assessing Study Methodologic Quality

Attributes of study methodology quality vary according to the clinical procedure (e.g., diagnostic, therapeutic intervention) looked at, and specific research questions being studied. The American Academy of Neurology's Clinical Practice Guideline Process Manual offers a comprehensive guide to systematic evidence review, quality attributes and consensus process that generally serves as the approach taken by Industrial Insurance Chiropractic Advisory Committee (IICAC).

General attributes identified when extracting evidence from studies include identification of population, the intervention and co-interventions and outcomes being addressed in each study. The clinical questions addressed such as diagnostic accuracy, therapeutic effectiveness, or causation are determined. Studies are extracted into evidence tables including quality attributes and/or ratings which are reviewed both by department staff and committee members (usually 2 per study).

Specific quality attributes include: Diagnostic Accuracy – design, spectrum of patients, validity and relevance of outcome metric; Therapeutic Interventions – comparison groups (no treatment, placebo, comparative intervention), treatment allocation, blinding/masking (method and degree: single, double, independent), follow-up (period and completion), and analysis (statistical power, intent-to-treat). Specific attention is paid to several factors including reporting of outcomes (primary vs. secondary), relevance of outcome (e.g., function versus pain), and meaningfulness (clinically important change versus minimally detectable change).

Synthesizing Evidence

Consideration of study quality (class), significance (statistical precision), consistency across studies, magnitude of effect, and relevance to populations and procedures were taken into account in preparing draft summaries. Special attention was given to clarifying conclusions related to the clinical questions of interest. Evidence, particularly with low tech and highly diffused examination and conservative procedures addressed here, is rarely truly "definitive," even when multiple studies exist. Inconsistent conclusions typically reflect error (systematic, random) and/or bias in studies. Data pooling via meta-analysis is useful to reduce random error when studies are of sufficient power and methodologic strength. Larger meaningful effect size may increases confidence in findings.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The conservative care resource/guideline process can be described in the following steps:

- Once a topic for a resource/guideline is selected, a subcommittee of the Industrial Insurance Chiropractic Advisory Committee (IICAC) made up of regular members identifies additional content experts to join the subcommittee and/or serve as consultants. Various clinical specialists may provide specific input or be invited to give a presentation to the subcommittee.
- A systematic review and summary of the relevant peer reviewed clinical and scientific literature is done (primarily by department staff and subcommittee members with specific interest and/or expertise in a topic). Claim and billing data from Labor & Industries may also be reviewed.
- Literature is retrieved, assessed for quality and summarized in evidence tables which are presented to the subcommittee for review. Then at a variable series of group meetings and phone conferences, the evidence with greatest relevance to the resource/guideline topic is highlighted.
- Based on this literature review and assessment by the subcommittee, department staff typically develop an initial draft resource guideline generally organized as follows:
    - General summary of topic, case definition, clinical evaluation, interventions, and clinical progress
    - Checklist for general chronological management with expected clinical and progress thresholds
    - Readily usable functional progress instruments for a given condition
    - Evidence summaries for clinical assessment (e.g., history, examination, imaging and special studies, prognostic and management issues, workers' compensation issues)
    - Evidence summaries for conservative interventions (e.g., physiotherapeutic modalities, bracing, manipulation and mobilization, soft tissue techniques, exercise and rehabilitation approaches, special interventions, common medications [injected and oral]), and workers compensation specific interventions (e.g., ergonomic interventions)
    - Additional materials (glossaries, procedure descriptions, instrument scoring)
    - Evidence and methodology process used in development
    - Citations
- Subcommittee members critique and revise the guideline based on what is most useful for the clinician in diagnosing and treating the condition in question. Additional expertise, consultation, and literature searches may also be added. This results in a second draft guideline that is then shared with the full advisory committee to obtain their input. At this stage specific content experts/reviewers may be sought as the subcommittee identifies particular issues.

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

- After the full advisory committee and special reviewers provide input, a third draft is produced and distributed to professional and specialty groups, the Industrial Insurance Chiropractic Advisory Committee (IICAC) and others who have expressed interest for broader public comment. This draft is also posted on the web for a four-week period for public review and comment.
- Once all public comments are received and reviewed, responses are provided by the subcommittee. Both comments and responses are posted on the web.
- The subcommittee may make further revisions to the draft guideline based on public input and any other information they have received. This then results in a fourth draft.
- The fourth draft is presented to the full advisory committee in an open public meeting. Oral comments are invited from the public, and the full committee may recommend further changes, potentially creating a fifth and final draft.
- Once the full committee makes the advisory recommendation to adopt the resource/guideline, it becomes final and is again posted on the web and distributed as before.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is not specifically stated for each recommendation.

In general, the recommendations were based primarily on a comprehensive review of peer-reviewed published scientific literature. In cases where the data did not appear conclusive, recommendations were based on the consensus opinion of the committee.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

- Use of appropriate conservative care options for work-related epicondylosis
- Use of evidence-informed discussions by attending providers regarding evaluation and care options for patients with occupationally related epicondylosis/epicondylitis for the purpose of shared decision making
- Utilization of validated tools for tracking functional improvement
- Timely referral for specialty care with better patient selection

Potential Harms

Although the corticosteroid injection had significant short term benefit, this benefit reversed after 6 weeks with high recurrence rates. Due to this, corticosteroid injection treatment should be used with caution when treating lateral epicondylitis.

Qualifying Statements

Qualifying Statements

This document is intended to inform care options and shared decision-making. It is not a standard of care, claim management standard, or a

substitute for clinical judgment in an individual case. This practice resource does not change Washington State Department of Labor and Industries coverage or payment.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Chart Documentation/Checklists/Forms

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

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Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2014 May 1

Guideline Developer(s)

Washington State Department of Labor and Industries - State/Local Government Agency [U.S.]

Source(s) of Funding

Washington State Department of Labor and Industries

Guideline Committee

The Washington State Department of Labor and Industries' Industrial Insurance Chiropractic Advisory Committee's Subcommittee on Policy, Practice, and Quality

Composition of Group That Authored the Guideline

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Financial Disclosures/Conflicts of Interest

The Washington State Department of Labor and Industries is a public state agency and did not receive any outside funding and has no conflicts of interest to report.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the Washington State Department of Labor and Industries Web site .

Availability of Companion Documents

A progress checklist, patient-rated tennis elbow evaluation rating scale, upper extremity functional index, and an upper limb functional index are included in the original guideline document .

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on July 15, 2014. This summary was updated by ECRI Institute on September 21, 2015 following the U.S. Food and Drug Administration advisory on non-aspirin nonsteroidal anti-inflammatory drugs (NSAIDs).

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